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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,637	03/17/2004	Kenneth R. Czerwinski	0492611-0546 (MIT 9986)	4916
24280 7590 12/10/2007 CHOATE, HALL & STEWART LLP TWO INTERNATIONAL PLACE BOSTON, MA 02110			EXAMINER LILLING, HERBERT J	
			ART UNIT 1657	PAPER NUMBER
			MAIL DATE 12/10/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/802,637

Applicant(s)

CZERWINSKI ET AL.

Examiner

HERBERT J. LILLING

Art Unit

1657

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-154 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-154 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: ____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: ____ | 6) <input type="checkbox"/> Other: ____ |

1. Receipt is acknowledged of a prior art information disclosure statement filed May 04, 2007.

2. Claims 1-154 are pending in this application.

3. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-23, 37-84, 86-96, 101-107, 121-133, 136-143, 146-153 drawn to a **method** for separating isotopes of an actinide element comprising steps of: providing a composition comprising molecules comprising an actinide element, wherein at least some of the molecules include a first isotope of the actinide element and at least some of the molecules include a second isotope of the actinide element; exposing the molecules comprising the actinide element to **reducing activity of actinide element reducing microorganisms**, thereby allowing formation of a precipitate comprising the actinide element, wherein the precipitate contains a higher proportion of the second isotope relative to the first isotope than was present in the original composition, thereby effecting a separation of the first and second isotopes; and effecting an increased separation of the first and second isotopes present in the precipitate using any suitable process, , classified in class 435, subclass 168.

II. Claims 24-25, 85, 99-100, 108-109, 134-135, 144-145, 154 drawn to a **first composition** whereby there is a combination of the first and second isotopes prepared by the method of claim 23 containing an increased separation of the first and second isotopes, classified in class 435, subclass 280.

III. Claims 26-30, 33-35, 97-98, 110-114, 117-120 drawn to a **second method** whereby the process of claim 23 is directed to a conversion by an oxidation of some molecules comprising the actinide element, classified in class 435, subclass 168.

Claim 36 has no antecedent basis for "prior to oxidizing step.

IV. Claim 31-32, 115-116, drawn to a composition produced by the oxidation of claim 26, classified in class 435, and subclass 168.

4. The inventions are independent or distinct, each from the other because:

Inventions I or III and II and IV are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be prepared by mixing of the isotopes together not requiring the claimed methods.

Because these inventions are independent or distinct for the reasons given above and there **would be a serious burden on the examiner if** restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, as well as that the inventions have acquired a separate status in the art due to their recognized divergent subject matter, restriction for examination purposes as indicated is proper. Furthermore, the search and examination for each of the inventions requires a different computerized search for the compositions and for the processes.

The two processes involve forming two different products in the final composition mixture whereby Group III requires an oxidation product which is different from Group I which is does not require an oxidation step.

5. This application contains claims directed to the following patentably distinct species:

A. Whereby the actinide element is selected from

- a- uranium,
- b- plutonium,
- c- neptunium,
- d- other-please specify.

B Whereby the microorganism is selected from genus with a further election of one of the species from the genus.

1. Clostridium,

- a. Clostridium sp,
- b. other-please specify.

2. Shewanella,

- a. Shewanella alga,
- b. Shewanella saccharophila,
- c. Shewanella oneidensis,
- d. other strain(s)-please specify.

3. Geobacter,

- a. *Geobacter chapelleii*,
 - b. *Geobacter hydrogenophilus* H2, and
Geobacter hydrogenophilus H2 [duplicate in claim 70]
 - c. *Geobacter* H4,
 - d. *Geobacter* TACP-2,
 - e. *Geobacter* TACP-3,
 - f. other strain or combination-please specify
4. *Pyrobaculum*,
- a. *Pyrobaculum islandicum*,
 - b. other-please specify.
5. *Desulfotomaculum*,
- a. *Desulfotomaculum reducens* MI-1,
 - b. other-please specify.
6. *Desulfovibrio*,
- a. *Desulfovibrio desulfuricans*,
 - b. *Desulfovibrio vulgaris*
 - c. Other(s)-please specify.
7. Other includes combinations-please specify the other.

8. *Deinococcus radiodurans* R1

It is noted that claim 70 has no antecedent basis for the above strain.

C. Whereby the microorganisms

i> overexpress a gene which encodes a protein that reduces an actinide element,

ii> do not have a gene that encodes a protein that reduces an actinide element,

iii> the microorganisms may have or may not have a gene which encodes a protein that reduces an actinide element,

iv> other-please specify.

Please note that if C iii is elected and Examiner finds either i> or ii>, applicant cannot limit to the other species.

D. Whereby the microorganisms are:

a. facultative aerobes,

b. anaerobes,

c. combination of above,

d. other-please specify.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, all independent claims are generic.

Applicant is advised that a reply to this requirement **must include an identification of the species that is elected consonant with this requirement**, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

6. Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species and invention to be examined even though the requirement be traversed (37 CFR 1.143) and **(ii) identification of the claims encompassing the elected invention which includes the species which are commensure in scope with the elected invention.**

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants

or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

7. In accordance with this Tech Center Policy based on above restriction containing product claims and process claims, this Examiner will rejoin any non-elected process claims upon the election of a product claim which is subsequently is found allowable in view of the following guidelines:

F.P.: Ochiai/Brouwer Rejoinder form paragraph

The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be rejoined in accordance with the provisions of MPEP § 821.04. **Process claims that depend from or otherwise include all the limitations of the patentable product** will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; amendments submitted after allowance are governed by 37 CFR 1.312.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103, and 112. Until an elected product claim is found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowed product claim will not be rejoined. See "Guidance on Treatment of Product and Process Claims in light of *In re Ochiai*, *In re Brouwer* and 35 U.S.C. § 103(b)," 1184 O.G. 86 (March 26, 1996). Additionally, in order to retain the right to rejoinder in accordance with the above policy, Applicant is advised that the process claims should be amended during prosecution either to maintain dependency on the product claims or to otherwise include the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.**

Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

8. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

9. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Lilling whose telephone number is 571-272-0918 and Fax Number is **571-273-8300**. or SPE Jon Weber whose telephone number is 571-272-0925. Examiner can be reached Monday-Friday from about 7:30 A.M. to about 7:00 P.M. Any inquiry of a general

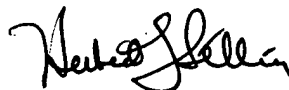
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nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

H.J.Lilling: HJL
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Art Unit 1657
November 28, 2007



Dr. Herbert J. Lilling
Primary Examiner
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